

Gi. Bagolsky

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Page 1 of 8  
1653

PH 11

RAW SEQUENCE LISTING  
PATENT APPLICATION: US/09/493,795A  
DATE: 05/01/2001  
TIME: 18:03:40

Input Set : A:\179a2.app  
Output Set: N:\CRF3\05012001\I493795A.raw

ENTERED  
see p.5

3 <110> APPLICANT: Watkins, Maren  
4 Olivera, Baldomero M.  
5 Hillyard, David R.  
6 McIntosh, J. Michael  
7 Jones, Robert M.  
9 <120> TITLE OF INVENTION: Alpha-Conotoxin Peptides  
11 <130> FILE REFERENCE: 2314-179.A  
13 <140> CURRENT APPLICATION NUMBER: US 09/493,795A  
14 <141> CURRENT FILING DATE: 2000-01-28  
16 <150> PRIOR APPLICATION NUMBER: US 60/118,381  
17 <151> PRIOR FILING DATE: 1999-01-29  
19 <160> NUMBER OF SEQ ID NOS: 404  
21 <170> SOFTWARE: PatentIn Ver. 2.0  
23 <210> SEQ ID NO: 1  
24 <211> LENGTH: 17  
25 <212> TYPE: PRT  
26 <213> ORGANISM: Artificial Sequence  
28 <220> FEATURE:  
29 <223> OTHER INFORMATION: Description of Artificial Sequence:Alpha-Conotoxin  
30 Peptide Generic Formula I  
32 <220> FEATURE:  
33 <221> NAME/KEY: SITE  
34 <222> LOCATION: (1)..(3)  
35 <223> OTHER INFORMATION: Xaa at residue 1 is des-Xaa, Ile, Leu or Val; Xaa  
36 at residue 2 is des-Xaa, Ala or Gly; Xaa at  
37 residue 3 is des-Xaa, Gly, Trp (D or L), neo-Trp,  
38 halo-Trp or any unnatural aromatic amino acid.  
40 <220> FEATURE:  
41 <221> NAME/KEY: SITE  
42 <222> LOCATION: (4)..(5)  
43 <223> OTHER INFORMATION: N-methyl-Lys, Xaa at residue 4 is des-Xaa, Gly,  
44 Trp (D or L), neo-Trp, halo-Trp or any unnatural  
45 aromatic amino acid; Xaa at residue 5 is Glu,  
46 gamma-carboxy-Glu (Gla), Asp, Ala, Thr, Ser, Gly,  
48 <220> FEATURE:  
49 <221> NAME/KEY: SITE  
50 <222> LOCATION: (5)..(8)  
51 <223> OTHER INFORMATION: Ile, Tyr, nor-Tyr, mono-halo-Tyr, di-halo-Tyr,  
52 O-sulpho-Tyr, O-phospho-Tyr, nitro-Tyr or any  
53 unnatural hydroxy containing amino acid; Xaa at  
54 residue 8 is Ser, Thr, Arg, ornithine,  
56 <220> FEATURE:  
57 <221> NAME/KEY: SITE  
58 <222> LOCATION: (8)..(9)  
59 <223> OTHER INFORMATION: homoarginine, Lys, N,N-dimethyl-Lys, N,N,N-  
60 trimethyl-Lys or any unnatural basic amino acid;  
61 Xaa at residue 9 is Asp, Glu, Gla, Arg, ornithine,

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64 <220> FEATURE:
65 <221> NAME/KEY: SITE
66 <222> LOCATION: (9)..(11)
67 <223> OTHER INFORMATION: Lys, N,N,N-trimethyl-Lys or any unnatural basic
68      amino acid; Xaa at residue 10 is Ser, Thr, Asn,
69      Ala, Gly, His, halo-His, Pro or hydroxy-Pro;
70      Xaa at residue 11 is Thr, Ser, Ala, Asp, Asn,
72 <220> FEATURE:
73 <221> NAME/KEY: SITE
74 <222> LOCATION: (11)..(13)
75 <223> OTHER INFORMATION: Pro, hydroxy-Pro, Arg, ornithine, homoarginine,
76      Lys, N-methyl-Lys, N,N-dimethyl-Lys, N,N,N-
77      trimethyl-Lys or any unnatural basic amino acid;
78      Xaa at residue 13 is Gly, Ser, Thr, Ala, Asn,
80 <220> FEATURE:
81 <221> NAME/KEY: SITE
82 <222> LOCATION: (13)..(14)
83 <223> OTHER INFORMATION: Arg, ornithine, homoarginine, Lys, N-methyl-Lys,
84      N,N-dimethyl-Lys, N,N,N-trimethyl-Lys or any
85      unnatural basic amino acid; Xaa at residue 14 is
86      Gln, Leu, His, halo-His, Trp (D or L), halo-Trp,
88 <220> FEATURE:
89 <221> NAME/KEY: SITE
90 <222> LOCATION: (14)
91 <223> OTHER INFORMATION: neo-Trp, Tyr, nor-Tyr, mono-halo-Tyr, di-halo-
92      Tyr, O-sulpho-Tyr, O-phospho-Tyr, nitro-Tyr, Arg,
93      ornithine, homoarginine, Lys, N-methyl-Lys, N,N-
94      dimethyl-Lys, N,N,N-trimethyl-Lys, any unnatural
96 <220> FEATURE:
97 <221> NAME/KEY: SITE
98 <222> LOCATION: (14)..(15)
99 <223> OTHER INFORMATION: basic amino acid or any unnatural aromatic amino
100     acid; Xaa at residue 15 is Asn, His, halo-His,
101     Ile, Leu, Val, Gln, Arg, ornithine, homoarginine,
102     Lys, N-methyl-Lys, N,N-dimethyl-Lys, N,N,N-
104 <220> FEATURE:
105 <221> NAME/KEY: SITE
106 <222> LOCATION: (15)..(17)
107 <223> OTHER INFORMATION: trimethyl-Lys or any unnatural basic amino acid;
108     Xaa at residue 17 is des-Xaa, Val, Ile, Leu, Arg,
109     ornithine, homoarginine, Lys, N-methyl-Lys, N,N-
110     dimethyl-Lys, N,N,N-trimethyl-Lys or any
112 <220> FEATURE:
113 <221> NAME/KEY: SITE
114 <222> LOCATION: (17)
115 <223> OTHER INFORMATION: unnatural basic amino acid.
117 <400> SEQUENCE: 1,
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 Output Set: N:\CRF3\05012001\I493795A.raw

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127 <212> TYPE: PRT
128 <213> ORGANISM: Artificial Sequence
130 <220> FEATURE:
131 <223> OTHER INFORMATION: Description of Artificial Sequence:Alpha-Conotoxin
132     Peptide Generic Formula II.
134 <220> FEATURE:
135 <221> NAME/KEY: SITE
136 <222> LOCATION: (1)..(3)
137 <223> OTHER INFORMATION: Xaa at residue 1 is des-Xaa, Asp, Glu or gamma-
138     carboxy-Glu (Gla); Xaa at residue 2 is des-Xaa,
139     Gln, Ala, Asp, Glu, Gla; Xaa at residue 3 is des-
140     Xaa, Gly, Ala, Asp, Glu, Gla, Pro or hydroxy-Pro.
142 <220> FEATURE:
143 <221> NAME/KEY: SITE
144 <222> LOCATION: (4)..(7)
145 <223> OTHER INFORMATION: Xaa at residue 4 is des-Xaa, Gly, Glu, Gla, Gln,
146     Asp, Asn, Pro or hydroxy-Pro; Xaa at residue 7 is
147     Ser, Thr, Gly, Glu, Gla, Asn, Trp (D or L),
148     neo-Trp, halo-Trp, Arg, ornithine, homoarginine,
150 <220> FEATURE:
151 <221> NAME/KEY: SITE
152 <222> LOCATION: (7)
153 <223> OTHER INFORMATION: Lys, N-methyl-Lys, N,N-dimethyl-Lys, N,N,N-
154     trimethyl-Lys, any unnatural basic amino acid,
155     Tyr, nor-Tyr, mono-halo-Tyr, di-halo-Tyr,
156     O-sulpho-Tyr, O-phospho-Tyr, nitro-Tyr or any
158 <220> FEATURE:
159 <221> NAME/KEY: SITE
160 <222> LOCATION: (7)..(8)
161 <223> OTHER INFORMATION: unnatural hydroxy containing amino acid; Xaa at
162     residue 8 is Asp, Asn, His, halo-His, Thr, Ser,
163     Tyr, nor-Tyr, mono-halo-Tyr, di-halo-Tyr,
164     O-sulpho-Tyr, O-phospho-Tyr, nitro-Tyr or any
166 <220> FEATURE:
167 <221> NAME/KEY: SITE
168 <222> LOCATION: (8)..(10)
169 <223> OTHER INFORMATION: unnatural hydroxy containing amino acid; Xaa at
170     residue 9 is Pro or hydroxy-Pro; Xaa at residue
171     10 is Ala, Ser, Thr, Asp, Val, Ile, Pro, hydroxy-
172     Pro, Tyr, nor-Tyr, mono-halo-Tyr, di-halo-Tyr,
174 <220> FEATURE:
175 <221> NAME/KEY: SITE
176 <222> LOCATION: (10)..(12)
177 <223> OTHER INFORMATION: O-sulpho-Tyr, O-phospho-Tyr, nitro-Tyr or any
178     unnatural hydroxy containing amino acid; Xaa at

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179      residue 12 is Gly, Ile, Leu, Val, Ala, Thr, Ser,
180      Pro, hydroxy-Pro, Phe, Trp (D or L), neo-Trp,
182 <220> FEATURE:
183 <221> NAME/KEY: SITE
184 <222> LOCATION: (12)..(13)
185 <223> OTHER INFORMATION: halo-Trp, Arg, ornithine, homoarginine, Lys, N-
186      methyl-Lys, N,N-dimethyl-Lys, N,N,N-trimethyl-
187      Lys, any unnatural basic amino acid or any
188      unnatural aromatic amino acid; Xaa at residue 13
190 <220> FEATURE:
191 <221> NAME/KEY: SITE
192 <222> LOCATION: (13)
193 <223> OTHER INFORMATION: is Ala, Asn, Phe, Pro, hydroxy-Pro, Glu, Gla,
194      Gln, His, halo-His, Val, Ser, Thr, Arg,
195      ornithine, homoarginine, Lys, N-methyl-Lys, N,N-
196      dimethyl-Lys, N,N,N-trimethyl-Lys or any
198 <220> FEATURE:
199 <221> NAME/KEY: SITE
200 <222> LOCATION: (13)..(14)
201 <223> OTHER INFORMATION: unnatural basic amino acid; Xaa at residue 14 is
202      Thr, Ser, His, halo-His, Leu, Ile, Val, Asn, Met,
203      Pro, hydroxy-Pro, Arg, ornithine, homoarginine,
204      Lys, N-methyl-Lys, N,N-dimethyl-Lys, N,N,N-
206 <220> FEATURE:
207 <221> NAME/KEY: SITE
208 <222> LOCATION: (14)..(15)
209 <223> OTHER INFORMATION: trimethyl-Lys, any unnatural basic amino acid,
210      Tyr, nor-Tyr, mono-halo-Tyr, di-halo-Tyr,
211      O-sulpho-Tyr, O-phospho-Tyr, nitro-Tyr or any
212      unnatural hydroxy containing amino acid; Xaa at
214 <220> FEATURE:
215 <221> NAME/KEY: SITE
216 <222> LOCATION: (15)
217 <223> OTHER INFORMATION: residue 15 is Asn, Pro, hydroxy-Pro, Gln, Ser,
218      Thr, Arg, ornithine, homoarginine, Lys, N-methyl-
219      Lys, N,N-dimethyl-Lys, N,N,N-trimethyl-Lys, any
220      unnatural basic amino acid, Tyr, nor-Tyr, mono-
222 <220> FEATURE:
223 <221> NAME/KEY: SITE
224 <222> LOCATION: (15)..(16)
225 <223> OTHER INFORMATION: halo-Tyr, di-halo-Tyr, O-sulpho-Tyr, O-phospho-
226      Tyr, nitro-Tyr or any unnatural hydroxy contain-
227      ing amino acid; Xaa at residue 16 is des-Xaa,
228      Gly, Thr, Ser, Pro, hydroxy-Pro, Tyr, nor-Tyr,
230 <220> FEATURE:
231 <221> NAME/KEY: SITE
232 <222> LOCATION: (16)..(17)
233 <223> OTHER INFORMATION: mono-halo-Tyr, di-halo-Tyr, O-sulpho-Tyr,
234      O-phospho-Tyr, nitro-Tyr or any unnatural hydroxy

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235     containing amino acid; Xaa at residue 17 is des-
236     Xaa, Ile, Val, Asp, Leu, Phe, Arg, ornithine,
238 <220> FEATURE:
239 <221> NAME/KEY: SITE
240 <222> LOCATION: (17)
241 <223> OTHER INFORMATION: homoarginine, Lys, N-methyl-Lys, N,N-dimethyl-
242     Lys, N,N,N-trimethyl-Lys, any unnatural basic
243     amino acid, Tyr, nor-Tyr, mono-halo-Tyr, di-halo-
244     Tyr, O-sulpho-Tyr, O-phospho-Tyr, nitro-Tyr or
246 <220> FEATURE:
247 <221> NAME/KEY: SITE
248 <222> LOCATION: (17)..(19)
249 <223> OTHER INFORMATION: any unnatural hydroxy containing amino acid; Xaa
250     at residue 19 is des-Xaa, Gly, Ala, Met, Ser,
251     Thr, Trp (D or L), neo-Trp, halo-Trp, any
252     unnatural aromatic amino acid, Arg, ornithine,
254 <220> FEATURE:
255 <221> NAME/KEY: SITE
256 <222> LOCATION: (19)..(20)
257 <223> OTHER INFORMATION: homoarginine, Lys, N-methyl-Lys, N,N-dimethyl-
258     Lys, N,N,N-trimethyl-Lys or any unnatural basic
259     amino acid; Xaa at residue 20 is des-Xaa, Trp
260     (D or L), neo-Trp, halo-Trp, any unnatural
262 <220> FEATURE:
263 <221> NAME/KEY: SITE
264 <222> LOCATION: (20)..(21)
265 <223> OTHER INFORMATION: aromatic amino acid, Arg, ornithine, homo-
266     arginine, Lys, N-methyl-Lys, N,N-dimethyl-Lys,
267     N,N,N-trimethyl-Lys or any unnatural basic amino
268     acid; Xaa at residue 21 is des-Xaa, Arg,
270 <220> FEATURE:
271 <221> NAME/KEY: SITE
272 <222> LOCATION: (21)
273 <223> OTHER INFORMATION: ornithine, homoarginine, Lys, N-methyl-Lys,
274     N,N-dimethyl-Lys, N,N,N-trimethyl-Lys or any
275     unnatural basic amino acid.
277 <400> SEQUENCE: 2
W--> 278 Xaa Xaa Xaa Xaa Cys Cys Xaa Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa
      279      1      5      10      15
W--> 281 Xaa Cys Xaa Xaa Xaa
      282      20
285 <210> SEQ ID NO: 3
286 <211> LENGTH: 28
287 <212> TYPE: PRT
288 <213> ORGANISM: Artificial Sequence
290 <220> FEATURE:
291 <223> OTHER INFORMATION: Description of Artificial Sequence:Alpha-Conotoxin
292     Peptide Generic Formula III.
294 <220> FEATURE:

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**Please Note:**

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

## VERIFICATION SUMMARY

DATE: 05/01/2001

PATENT APPLICATION: US/09/493,795A

TIME: 18:03:41

Input Set : A:\179a2.app

Output Set: N:\CRF3\05012001\I493795A.raw

L:118 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1  
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L:281 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2  
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L:531 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4  
L:546 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5  
L:573 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:7  
L:591 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:8  
L:609 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9  
L:625 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:10  
L:648 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:11  
L:668 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:12  
L:685 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:13  
L:701 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:14  
L:719 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:15  
L:736 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:16  
L:753 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:17  
L:770 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:18  
L:787 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:19  
L:805 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:20  
L:820 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:21  
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L:878 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:24  
L:898 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:25  
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L:936 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27  
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L:1011 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:31  
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L:1105 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:36  
L:1121 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:37  
L:1140 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:38  
L:1161 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:39  
L:1179 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:40  
L:1196 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:41  
L:1214 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:42  
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